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1 **Internet: a computer support tool for building the human genome**
Stolov, S.E.;
Electro/95 International. Professional Program Proceedings. , 21-23 June 199
Pages:441 - 452

[Abstract] [PDF Full-Text (764 KB)] IEEE CNF

2 **Genetic algorithms for coordinating multi-agent robotic systems**
Fang-Chang Lin;
Systems, Man, and Cybernetics, 1997. 'Computational Cybernetics and Simulation'., 1997 IEEE International Conference on , Volume: 4 , 12-15 Oct.

Pages:3431 - 3436 vol.4

[Abstract] [PDF Full-Text (560 KB)] IEEE CNF

3 **Genetic aided scheduling of hydraulically coupled plants in hydro-thermal coordination**
Po-Hung Chen; Hong-Chan Chang;
Power Systems, IEEE Transactions on , Volume: 11 , Issue: 2 , May 1996
Pages:975 - 981

[Abstract] [PDF Full-Text (800 KB)] IEEE JNL

4 **Evolutionary algorithm based offline/online path planner for UAV navigation**
Nikolos, I.K.; Valavanis, K.P.; Tsourveloudis, N.C.; Kostaras, A.N.;
Systems, Man and Cybernetics, Part B, IEEE Transactions on , Volume: 33 , I 6 , Dec. 2003
Pages:898 - 912

[Abstract] [PDF Full-Text (2343 KB)] IEEE JNL

5 **Application on advanced optical tweezers to the study of mitotic mc proteins**

Brouhard, G.J.; Hunt, A.J.;

[Engineering in Medicine and Biology, 2002. 24th Annual Conference and the Annual Fall Meeting of the Biomedical Engineering Society] EMBS/BMES Conference, 2002. Proceedings of the Second Joint , Volume: 1 , 2002
Pages:394 - 395 vol.1

[Abstract] [PDF Full-Text (248 KB)] IEEE CNF

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Pages:394 - 395 vol.1

[Abstract] [PDF Full-Text (248 KB)] **IEEE CNF**

2 **Genetic-based fuzzy clustering for DC-motor friction identification a compensation**
Tzes, A.; Pei-Yuan Peng; Guthy, J.;
Control Systems Technology, IEEE Transactions on , Volume: 6 , Issue: 4 , Ju 1998
Pages:462 - 472

[Abstract] [PDF Full-Text (308 KB)] **IEEE JNL**

3 **Optimising train movements through coast control using genetic algorithms**
Chang, C.S.; Sim, S.S.;
Electric Power Applications, IEE Proceedings- , Volume: 144 , Issue: 1 , Jan.
Pages:65 - 73

[Abstract] [PDF Full-Text (860 KB)] **IEE JNL**

4 **Nerve degeneration in Huntington's disease**
Sridhar, B.; Micheli-Tzanakou, E.;
Bioengineering Conference, 2002. Proceedings of the IEEE 28th Annual

Northeast , 20-21 April 2002
Pages:203 - 204

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Pages:898 - 912

[Abstract] [PDF Full-Text (2343 KB)] **IEEE JNL**

2 **Evolutionary Gabor filter optimization with application to vehicle detection**
Sun, Z.; Bebis, G.; Miller, R.;
Data Mining, 2003. ICDM 2003. Third IEEE International Conference on , 19-: Nov. 2003
Pages:307 - 314

[Abstract] [PDF Full-Text (488 KB)] **IEEE CNF**

3 **A hierarchical genetic algorithm for path planning in a static environment with obstacles**
Chunmiao Wang; Soh, Y.C.; Han Wang; Hui Wang;
Electrical and Computer Engineering, 2002. IEEE CCECE 2002. Canadian Conference on , Volume: 3 , 12-15 May 2002
Pages:1652 - 1657 vol.3

[Abstract] [PDF Full-Text (444 KB)] **IEEE CNF**

4 **Tuning of neuro-fuzzy controller by real-coded genetic algorithm wi application to an autonomous underwater vehicle control system**
Hua-Nan Yu; Jia-Min Zhao; Yu-Ru Xu;

Machine Learning and Cybernetics, 2002. Proceedings. 2002 International Conference on , Volume: 2 , 4-5 Nov. 2002
Pages:735 - 738 vol.2

[Abstract] [PDF Full-Text (378 KB)] IEEE CNF

5 **Intelligent solutions for cybernetics vehicle control**
Ramos, A.R.M.; Barone, D.A.C.;
Systems, Man and Cybernetics, 1995. 'Intelligent Systems for the 21st Centu IEEE International Conference on , Volume: 4 , 22-25 Oct. 1995
Pages:2983 - 2987 vol.4

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Application#	Patent#	Status	Date Filed	Title	Inventor Name 3
10233898	Not Issued	041	08/29/2002	ELECTRONIC ENGINE CONTROL DEVICE	KISHI, TOMOAKI
09873510	Not Issued	030	06/04/2001	METHOD FOR CONTROLLING MACHINE WITH CONTROL MUDULE OPTIMIZED BY IMPROVED EVOLUTIONARY COMPUTING	KISHI, TOMOAKI
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Application Number Information

Application Number: **09/873510**
Assignments
Examiner Number: **78360 / HOLMES, MICHAEL**
Filing Date: **06/04/2001**
Group Art Unit: **2121**
Effective Date: **06/04/2001**
Class/Subclass: **706/025.000**
Application Received: **06/05/2001**
Lost Case: **NO**
Pat. Num./Pub. Num: **/20020013776**
Interference Number:
Issue Date: **00/00/0000**
Unmatched Petition: **NO**
Date of Abandonment: **00/00/0000**
L&R Code: Secrecy Code:**1**
Attorney Docket Number: **FY.16653US0A**
Third Level Review: **NO**
Secrecy Order: **NO**
Status: **30 /DOCKETED NEW CASE - READY FOR EXAMINATION**
Status Date: **09/01/2001**
Confirmation Number: **4686**
Oral Hearing: **NO**
Title of Invention: **METHOD FOR CONTROLLING MACHINE WITH CONTROL MUDULE OPTIMIZED BY IMPROVED EVOLUTIONARY COMPUTING**

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Application #: 09873510 **Filing Dt:** 06/04/2001 **Patent #:** NONE **Issue Dt:**

PCT #: NONE **Publication #:** 20020013776 **Pub Dt:** 01/31/20

Inventor: Tomoaki Kishi

Title: Method for controlling machine with control mudule optimized by improved evolutionary computing

Assignment: 1

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Assignor: KISHI, TOMOAKI **Exec Dt:** 05/31/2001

Assignee: YAMAHA HATSUDOKI KABUSHIKI KAISHA
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{martin,cheyer,moran}@ai.sri.com

Abbreviated title: *Open Agent Architecture*

Abstract:

The Open Agent Architecture (*OAA*), developed and used for several years at SRI International, makes it possible for software services to be provided through the cooperative efforts of distributed collections of autonomous agents. Communication and cooperation between agents are brokered by one or more facilitators, which are responsible for matching requests, from users and agents, with descriptions of the capabilities of other agents. Thus, it is not generally required that a user or agent know the identities, locations, or number of other agents involved in satisfying a request. *OAA* is structured so as to minimize the effort involved in creating new agents and ``wrapping'' legacy applications, written in various languages and operating on various platforms; to encourage the reuse of existing agents; and to allow for dynamism and flexibility in the makeup of agent communities. Distinguishing features of *OAA* as compared with related work include extreme flexibility in using facilitator-based delegation of complex goals, triggers, and data management requests; agent-based provision of multimodal user interfaces; and built-in support for including the user as a privileged member of the agent community.

This paper explains the structure and elements of agent-based systems constructed using *OAA*. The

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... The mitotic spindle is a highly dynamic molecular **machine** composed of tubulin, **motors**, and other molecules. It assembles around the **chromosomes** and distributes ...
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[PPT] 19.5 The mitotic apparatus is a **machine** for separating **chromosomes**
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19.5 The mitotic apparatus is a **machine** for separating **chromosomes**. Figure 19-35. ... Figure 19-24. 19.3 Microtubule **motors**: kinesins and dyneins. ...
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☐ 1. Document ID: US 20040039555 A1

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L3: Entry 1 of 10 File: PGPB Feb 26, 2004

PGPUB-DOCUMENT-NUMBER: 20040039555
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040039555 A1

TITLE: System and method for stochastic simulation of nonlinear dynamic systems with a high degree of freedom for soft computing applications

PUBLICATION-DATE: February 26, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Ulyanov, Sergei V.	Crema		IT	
Panfilov, Sergei	Crema		IT	

US-CL-CURRENT: 703/2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

☐ 2. Document ID: US 20040030420 A1

L3: Entry 2 of 10 File: PGPB Feb 12, 2004

PGPUB-DOCUMENT-NUMBER: 20040030420
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040030420 A1

TITLE: System and method for nonlinear dynamic control based on soft computing with discrete constraints

PUBLICATION-DATE: February 12, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Ulyanov, Sergei V.	Crema		IT	
Panfilov, Sergei	Crema		IT	
Takahashi, Kazuki	Crema		IT	

US-CL-CURRENT: 700/48; 700/42, 706/13, 706/2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 3. Document ID: US 20040030414 A1

L3: Entry 3 of 10 File: PGPB Feb 12, 2004

PGPUB-DOCUMENT-NUMBER: 20040030414
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040030414 A1

TITLE: Method and apparatus for automatic synthesis of controllers

PUBLICATION-DATE: February 12, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Koza, John R.	Los Altos Hills	CA	US	
Keane, Martin A.	Chicago	IL	US	
Yu, Jessen	Sunnyvale	CA	US	
Bennett, Forrest H. III	Palo Alto	CA	US	
Mydlowec, William	Sunnyvale	CA	US	

US-CL-CURRENT: 700/1; 703/13, 706/13, 706/920

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 4. Document ID: US 20040024750 A1

L3: Entry 4 of 10 File: PGPB Feb 5, 2004

PGPUB-DOCUMENT-NUMBER: 20040024750
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040024750 A1

TITLE: Intelligent mechatronic control suspension system based on quantum soft computing

PUBLICATION-DATE: February 5, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Ulyanov, Sergei V.	Cream		IT	
Panfilov, Sergei A.	Crema		IT	
Ulyanov, Viktor S.	Crema		IT	
Hagiwara, Takahide	Iwata		JP	
Takahashi, Kazuki	Crema		IT	
Litvintseva, Ludmila	Crema		IT	

US-CL-CURRENT: 707/3

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 5. Document ID: US 20030032010 A1

L3: Entry 5 of 10 File: PGPB Feb 13, 2003

PGPUB-DOCUMENT-NUMBER: 20030032010
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030032010 A1

TITLE: Methods of populating data structures for use in evolutionary simulations

PUBLICATION-DATE: February 13, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Selifonov, Sergey A.	Los Altos	CA	US	
Stemmer, Willem P.C.	Los Gatos	CA	US	

US-CL-CURRENT: 435/6; 702/20

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 6. Document ID: US 6564194 B1

L3: Entry 6 of 10 File: USPT May 13, 2003

US-PAT-NO: 6564194
DOCUMENT-IDENTIFIER: US 6564194 B1
**** See image for Certificate of Correction ****

TITLE: Method and apparatus for automatic synthesis controllers

DATE-ISSUED: May 13, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Koza; John R.	Los Altos Hills	CA	94022	
Keane; Martin A.	Chicago	IL		
Yu; Jessen	Sunnyvale	CA		
Bennett, III; Forrest H	Palo Alto	CA		
Mydlowec; William	Sunnyvale	CA		

US-CL-CURRENT: 706/13; 706/52

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☑ 7. Document ID: US 6282528 B1

L3: Entry 7 of 10 File: USPT Aug 28, 2001

US-PAT-NO: 6282528
DOCUMENT-IDENTIFIER: US 6282528 B1

TITLE: Method for optimizing the layout and charge maps of a flowline of pick and place machines

DATE-ISSUED: August 28, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Schaffer; J. David	Wappingers Fall	NY		
Mani; Murali	Chappaqua	NY		

US-CL-CURRENT: 706/13

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 8. Document ID: US 6275815 B1

L3: Entry 8 of 10 File: USPT Aug 14, 2001

US-PAT-NO: 6275815
DOCUMENT-IDENTIFIER: US 6275815 B1

TITLE: Apparatus for optimizing the layout and charge maps of a flowline of pick and place machines

DATE-ISSUED: August 14, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Schaffer; J. David	Wappingers Fall	NY		
Mani; Murali	Chappaqua	NY		

US-CL-CURRENT: 706/13

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 9. Document ID: US 5909674 A

L3: Entry 9 of 10 File: USPT Jun 1, 1999

US-PAT-NO: 5909674
DOCUMENT-IDENTIFIER: US 5909674 A

TITLE: Method for optimizing the layout and charge maps of a flowline of pick and place machines

DATE-ISSUED: June 1, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Schaffer; J. David	Wappingers Fall	NY		
Mani; Murali	Chappaqua	NY		

US-CL-CURRENT: 706/13; 700/173, 700/246, 700/247

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

☐ 10. Document ID: US 5864833 A

L3: Entry 10 of 10 File: USPT Jan 26, 1999

US-PAT-NO: 5864833
DOCUMENT-IDENTIFIER: US 5864833 A

TITLE: Apparatus for optimizing the layout and charge maps of a flowline of pick and place machines

DATE-ISSUED: January 26, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Schaffer; J. David	Wappingers Fall	NY		
Mani; Murali	Chappaqua	NY		

US-CL-CURRENT: 706/13; 700/173, 706/45

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

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CENTER FOR ENGINEERING EDUCATION AND PRACTICE

COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

UNIVERSITY OF MICHIGAN-DEARBORN

AUTHOR:

Ali K. Kamrani
Department of Industrial and Manufacturing Systems Engineering

ASSISTANT:

Ron Wang
Graduate Student Research Assistant

BACKGROUND:

An intelligent diagnosis system (IDS) for automated equipment is highly in demand because advantages:

1. Availability: It is always available.
2. Perpetual: It maintains knowledge permanently.
3. Synthetic: It synthesizes knowledge from different experts.
4. Effective and efficient: It provides more accurate diagnosis in less time.
5. Flexible: Knowledge is constantly updated.
6. Cost efficient: Once implemented, it only requires cost for maintenance.

The success of any IDS depends on the quality of its knowledge, reasoning methodologies, a Knowledge acquisition becomes the bottleneck to developing such systems.

OBJECTIVE:

The objective of this project is to develop a self-learning system to alleviate knowledge a The project is based on genetic algorithm (GA) and design of experiment (DOE) methodolo failure data and extract rules from the data. Although a robot is selected for analysis, the syst expanded to acquire diagnosis knowledge for other equipment.

APPROACH:

The methodology employed for the system (a genetic algorithm) is based on the evolutic composed of population, operators (reproduce, crossover, and mutation), fitness function, an GA population consists of chromosome structures where each chromosome represents a solu problem. *Reproduce operator* selects the individuals that have a higher chance of survival. *C* part of the chromosome with a certain probability between different individual **chromosome** attributes within an individual chromosome. *Fitness* is the criteria determining whether an in environment or not.

In this project, 13 exogenous variables form the symptoms according to the movement o movements in cartesian and joint modes and the HOME position). Each variable has two stat and "1" indicates errors observed in the movement. The cause can be any one of the 17 possi six encoders, and five micro switches). Each possible cause also has two statuses: "0" repres condition and "1" indicates the part in faulty condition.

With 17 possible causes of failures, the set of fault scenarios could reach up to 2^{17}-1= 1 Different combinations of faults could generate the same symptom. Hence, only a portion of Design of experiment (DOE) technique is used to determine the total number of data points a collected. Each data point is collected by simulating the robot's arm with some faults set acc experiment design. The collected data set is randomly divided into the training set (80%) and each possible cause, this division is repeated five times. Each time the system will capture ru by applying a specific GA model. Then the integrity of the GA model is evaluated by testing and by utilizing the average fitness as a measure of the model integrity. The average of the re divisions yields the evaluation of this specific GA model as applied to the fault cause. GA ha paradigm and parameters could be set towards a specific problem. Therefore, different mode compared for selection of the best one. In this study, five paradigms are used, which are sum addition to these paradigms, three parameters are also concerned. They are Crossover Rate, (many points in a chromosome can be crossovered), and Elitism (percentage of the populatio "good solutions"). Crossover rate has four levels (0.6 – 0.9, with 0.1 step), crossover point ha elitism has three levels (0.1, 0.14 and 0.18). The paradigms and parameters form 5*4*15*3 = All these 900 models are trained and tested for comparison.

The evaluation results of 900 GA models are used to determine which paradigm or para to the fitness. They are used as inputs to MINITAB for the analysis of variance (ANOVA) fc paradigm and parameters. The best model performs learning using the whole data set. The ru the knowledge. Validation ensures that the rules generated are true representations of the sys independent of the previous scenarios are collected. The extracted rules are tested against the high fitness is the indicator of the success of the knowledge acquisition system.

RESULTS:

The system is implemented using Borland C++, with a user-friendly interface. A typical lear illustrated in Figure 1.

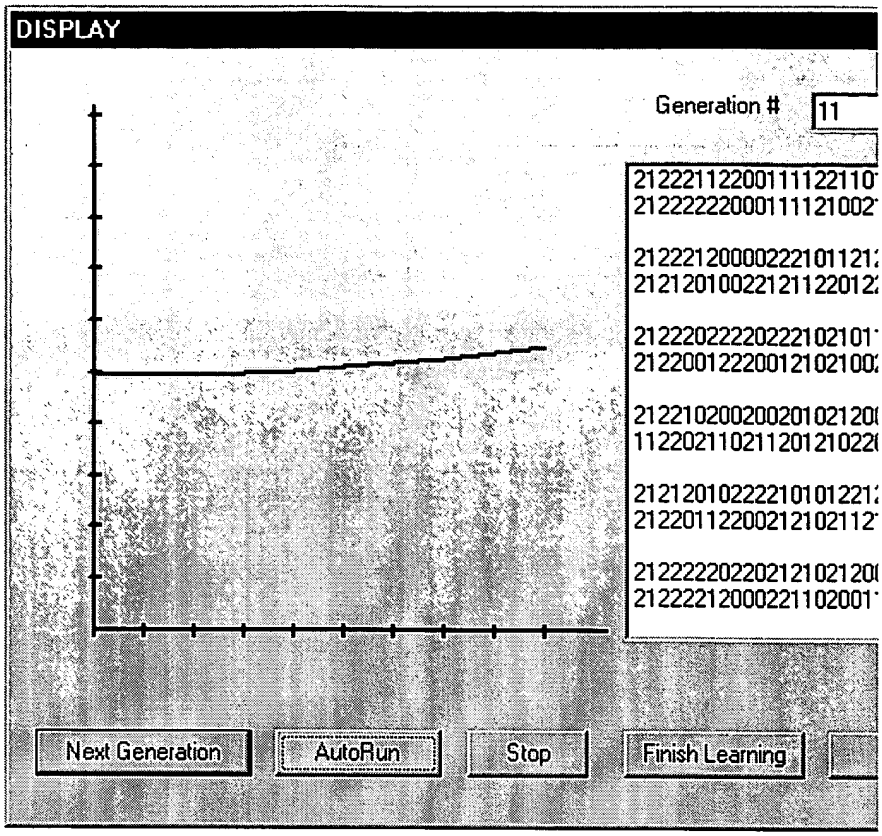


Figure 1. A learning procedure

In Figure 1, the list box to the right presents all the individuals within a population, while the reveals that the average fitness of the population is going up along time axis. The results fror follows:

- Diploid chromosome paradigms are better then single chromosome paradigm. Amon; paradigms, the Diploid-Non-Dominance-Non-Gender paradigm is the best one.
- Small multiple crossover point (2-3) is superior.
- Crossover rate and elitism factors are not significant in contributing to the fitness.

Based on these results, the best GA model for the robot diagnosis analysis is: Diploid chrom Dominance-Non-Gender paradigm with crossover rate 0.6, elitism factor 0.14, crossover poi generated from the analysis are listed in Table 2.

CONCLUSIONS:

This project applies genetic algorithm to extract knowledge from previous failure data. I knowledge acquisition procedure and alleviates the knowledge acquisition bottleneck. Previc adequately sampled using DOE technology. Different GA models are developed for selectio best GA model extracts the final rules. The results from the system demonstrate the general i learning procedure; Diploid-Non-Dominance-Non-Gender GA paradigm with crossover rate and crossover point 2 is proved to be the most suitable model for robot diagnosis knowledge

IMPACT:

This research possesses high value for both education and industry. For education, this p algorithm, an efficient and effective **machine** learning method, to generate knowledge for ro algorithm has infrequently been applied in this domain. For industry, although the robot was application to illustrate the capabilities of the technique, the system is easily adapted for kno diagnosing other equipment. Only redefinition of symptoms and causes is required. The kno also be implemented into the knowledge base for an intelligent diagnosis system.

Table 1. Summary of different paradigms

Population Type	Population Name	Description	CrossOver Operator
1	Single chromosome	An individual has only one chromosome	Normal crossover is applied. The crossover points range between 1 and ½ length of the chromosome.
2	Diploid-non dominance-non gender	An individual has two **chromosomes**. Crossover can be of same or different gender.	For single point crossover, the tw parents exchange one chromosome with each other. For multiple point crossover, the two parents each provide one chromosome to form a new individual and then normal crossover is executed on the two **chromosomes** within this new individual.
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			two parents each provide one chromosome to form a new individual and then normal crossover is executed on the two **chromosomes** within this new individual.

[1]Fitness Function: f(g)= (Pg+N-Ng)/(P+N) where:

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- P: the positive example number that the whole data has for a specified motor /encode (**Positive example:** when learning rules about a specific fault, all of the examples cor are treated as positive examples. **Negative example:** the rest of the examples in the d
- N: the negative example number that the whole data has for a specified motor /encod
- Pg: the positive example number that g covers within P.
- Ng: the negative example number that g covers within N.

Table 2. Sample rules learned for different faults

Faults	Rules Learned (String)	Rules Learned (Standard I
Motor 1	1122121202221	**IF** X, Y and Roll movements in catasian r movement in joint mode are faulty, **but** Ell joint mode is normal **and** Home function i **THEN** Motor 1 is malfunctioning.
Motor 3	1121222212122	**IF** X, Y and Pitch movements in catasian r Roll movements in joint mode are faulty, **THEN** Motor 3 is malfunctioning.
Encoder 4	2222112221121	**IF** Roll and Grip movement in catesian mc Pitch and Roll movement in joint mode are faulty, **THEN** Encoder 4 is malfunctioning.
Microswitch 3	2122212212111	**IF** Y and Grip movements in catesian mod Elbow, Roll and Grip movement in joint m HOME is faulty, **THEN** Micro switch 3 is malfunctioning.



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A Genetic Approach Methodology for Knowle

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CENTER FOR ENGINEERING EDUCATION AND PRACTICE

COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

UNIVERSITY OF MICHIGAN-DEARBORN

AUTHOR:

Ali K. Kamrani
Department of Industrial and Manufacturing Systems Engineering

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Ron Wang
Graduate Student Research Assistant

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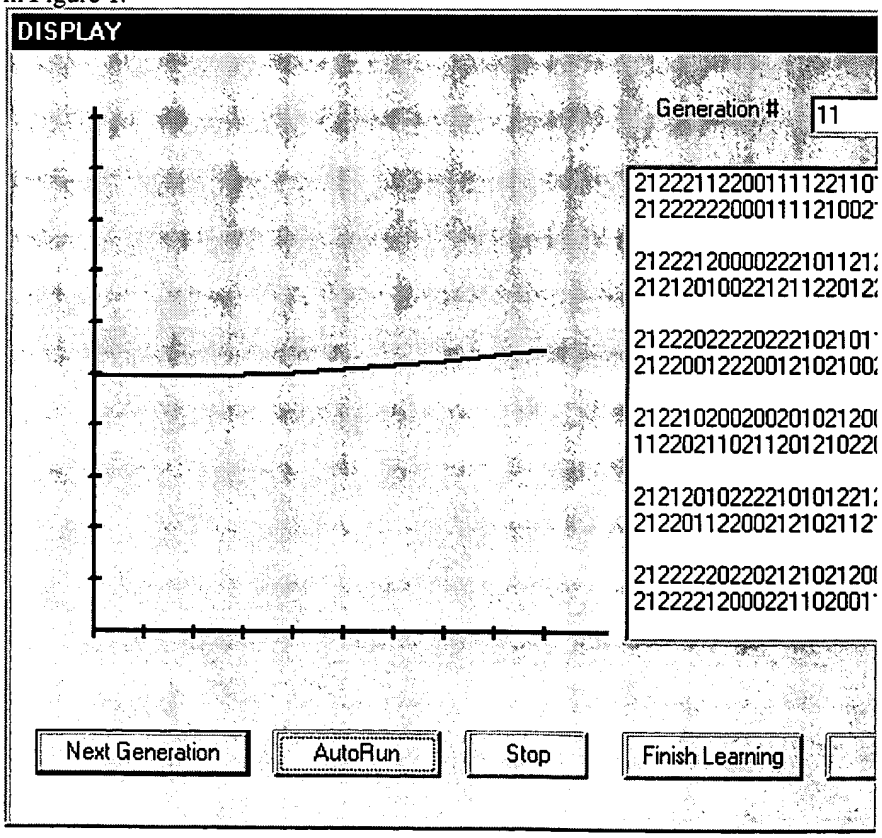


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- N: the negative example number that the whole data has for a specified motor /encod
- Pg: the positive example number that g covers within P.
- Ng: the negative example number that g covers within N.

Table 2. Sample rules learned for different faults

Faults	Rules Learned (String)	Rules Learned (Standard I
Motor 1	1122121202221	**IF** X, Y and Roll movements in catasian m movement in joint mode are faulty, **but** Ell joint mode is normal **and** Home function i: **THEN** Motor 1 is malfunctioning.
Motor 3	1121222212122	**IF** X, Y and Pitch movements in catasian r Roll movements in joint mode are faulty,

		THEN Motor 3 is malfunctioning.
Encoder 4	2222112221121	**IF** Roll and Grip movement in catesian mc Pitch and Roll movement in joint mode are faulty, **THEN** Encoder 4 is malfunctioning.
Microswitch 3	2122212212111	**IF** Y and Grip movements in catesian mod Elbow, Roll and Grip movement in joint m HOME is faulty, **THEN** Micro switch 3 is malfunctioning.

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Search Results -

Terms	Documents
L3 and chromosomes and machine$2	9

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L4	L3 and chromosomes and machine$2	9	L4
L3	706/25.ccls.	810	L3
L2	to6/25.ccls.	0	L2
L1	20020013776	2	L1

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☐ 1. Document ID: US 20040010480 A1

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L4: Entry 1 of 9 File: PGPB Jan 15, 2004

PGPUB-DOCUMENT-NUMBER: 20040010480
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040010480 A1

TITLE: Method, apparatus, and program for evolving neural network architectures to detect content in media information

PUBLICATION-DATE: January 15, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Agnihotri, Lalitha	Fishkill	NY	US	
Schaffer, James David	Wappingers Falls	NY	US	
Dimitrova, Nevenka	Yorktown Heights	NY	US	
McGee, Thomas	Garrison	NY	US	
Jeannin, Sylvie	Paris		FR	

US-CL-CURRENT: 706/20; 706/13, 706/16, 706/25, 706/31

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 2. Document ID: US 6553357 B2

L4: Entry 2 of 9 File: USPT Apr 22, 2003

US-PAT-NO: 6553357
DOCUMENT-IDENTIFIER: US 6553357 B2

TITLE: Method for improving neural network architectures using evolutionary algorithms

DATE-ISSUED: April 22, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Mathias; Keith E.	Ossining	NY		

Eshelman; Larry J.	Ossining	NY
Schaffer; J. David	Wappingers Falls	NY

US-CL-CURRENT: 706/25; 706/15, 706/16, 706/27

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

☐ 3. Document ID: US 6397113 B1

L4: Entry 3 of 9 File: USPT May 28, 2002

US-PAT-NO: 6397113
DOCUMENT-IDENTIFIER: US 6397113 B1

TITLE: Integrated control system

DATE-ISSUED: May 28, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kamihira; Ichikai	Iwata			JP

US-CL-CURRENT: 700/47; 700/48, 700/50, 701/106, 706/13, 706/25

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

☐ 4. Document ID: US 6314412 B1

L4: Entry 4 of 9 File: USPT Nov 6, 2001

US-PAT-NO: 6314412
DOCUMENT-IDENTIFIER: US 6314412 B1

TITLE: Evolutionary control of machine based on user's preference inferred from user's operation

DATE-ISSUED: November 6, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yamaguchi; Masashi	Iwata			JP
Kamihira; Ichikai	Iwata			JP

US-CL-CURRENT: 706/13; 706/14, 706/25

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

☐ 5. Document ID: US 6304862 B1

L4: Entry 5 of 9 File: USPT Oct 16, 2001

US-PAT-NO: 6304862
DOCUMENT-IDENTIFIER: US 6304862 B1

TITLE: Evolutionary controlling system

DATE-ISSUED: October 16, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yamaguchi; Masashi	Iwata			JP
Kamihira; Ichikai	Iwata			JP

US-CL-CURRENT: 706/13; 706/14, 706/25

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

☐ 6. Document ID: US 6278986 B1

L4: Entry 6 of 9 File: USPT Aug 21, 2001

US-PAT-NO: 6278986
DOCUMENT-IDENTIFIER: US 6278986 B1
**** See image for Certificate of Correction ****

TITLE: Integrated controlling system

DATE-ISSUED: August 21, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kamihira; Ichikai	Iwata			JP
Yamaguchi; Masashi	Iwata			JP

US-CL-CURRENT: 706/25; 701/101, 701/102, 701/58, 706/13, 706/31, 706/45

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

☐ 7. Document ID: US 6263325 B1

L4: Entry 7 of 9 File: USPT Jul 17, 2001

US-PAT-NO: 6263325
DOCUMENT-IDENTIFIER: US 6263325 B1

TITLE: System, method, and program storage medium for executing a learning algorithm

DATE-ISSUED: July 17, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yoshida; Yukiko	Kanagawa			JP
Adachi; Nobue	Kanagawa			JP

US-CL-CURRENT: 706/12; 706/13, 706/25

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

☐ 8. Document ID: US 6151548 A

L4: Entry 8 of 9 File: USPT Nov 21, 2000

US-PAT-NO: 6151548
DOCUMENT-IDENTIFIER: US 6151548 A

TITLE: Integrated controlling system

DATE-ISSUED: November 21, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kamihira; Ichikai	Iwata			JP
Yamaguchi; Masashi	Iwata			JP

US-CL-CURRENT: 701/102; 701/106, 701/114, 701/58, 701/59, 706/25

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

☐ 9. Document ID: US 6021369 A

L4: Entry 9 of 9 File: USPT Feb 1, 2000

US-PAT-NO: 6021369
DOCUMENT-IDENTIFIER: US 6021369 A

TITLE: Integrated controlling system

DATE-ISSUED: February 1, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kamihira; Ichikai	Iwata			JP
Yamaguchi; Masashi	Iwata			JP

US-CL-CURRENT: 701/102; 700/28, 700/29, 701/106, 701/58, 701/59, 706/14, 706/25

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

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Terms	Documents
L3 and chromosomes and machine$2	9

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Search: L7

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L6	L5 and space and coordinates and control and parameters	237	L6
L5	chromosomes and machine$2	7320	L5
L4	L3 and chromosomes and machine$2	9	L4
L3	706/25.ccls.	810	L3
L2	to6/25.ccls.	0	L2
L1	20020013776	2	L1

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☐ 1. Document ID: US 20040076999 A1

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L7: Entry 1 of 5 File: PGPB Apr 22, 2004

PGPUB-DOCUMENT-NUMBER: 20040076999
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040076999 A1

TITLE: Computer user interface facilitating acquiring and analyzing of biological specimen traits

PUBLICATION-DATE: April 22, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Faeldt, Edward	Backefors	MA	SE	
Serrano, Luis	Heidelberg	TX	DE	
Gonzalez, Cayetano	Madrid	TX	ES	
Boulin, Christian	Wiesloch		DE	
Cummings, Christopher J.	Brookline		US	
Botas, Juan	Houston		US	
Zoghbi, Huda	Houston		US	

US-CL-CURRENT: 435/6; 702/20

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

☐ 2. Document ID: US 20020013776 A1

L7: Entry 2 of 5 File: PGPB Jan 31, 2002

PGPUB-DOCUMENT-NUMBER: 20020013776
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020013776 A1

TITLE: Method for controlling machine with control mudule optimized by improved evolutionary computing

PUBLICATION-DATE: January 31, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Kishi, Tomoaki	Iwata-shi		JP	

US-CL-CURRENT: 700/47

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 3. Document ID: US 20010034580 A1

L7: Entry 3 of 5 File: PGPB Oct 25, 2001

PGPUB-DOCUMENT-NUMBER: 20010034580
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20010034580 A1

TITLE: Methods for using functional site descriptors and predicting protein function

PUBLICATION-DATE: October 25, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Skolnick, Jeffrey	San Diego	CA	US	
Fetrow, Jacquelyn S.	San Diego	CA	US	

US-CL-CURRENT: 702/19; 435/7.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 4. Document ID: US 6631332 B2

L7: Entry 4 of 5 File: USPT Oct 7, 2003

US-PAT-NO: 6631332
DOCUMENT-IDENTIFIER: US 6631332 B2

TITLE: Methods for using functional site descriptors and predicting protein function

DATE-ISSUED: October 7, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Skolnick; Jeffrey	San Diego	CA		
Fetrow; Jacquelyn S.	San Diego	CA		

US-CL-CURRENT: 702/19; 435/4, 436/86, 702/27

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw D

☐ 5. Document ID: US 5136686 A

L7: Entry 5 of 5 File: USPT Aug 4, 1992

US-PAT-NO: 5136686
DOCUMENT-IDENTIFIER: US 5136686 A
** See image for Certificate of Correction **

TITLE: Non-linear genetic algorithms for solving problems by finding a fit composition of functions

DATE-ISSUED: August 4, 1992

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Koza; John R.	Los Altos Hills	CA	94022	

US-CL-CURRENT: 706/13

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

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Terms	Documents
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JNL = Journal or Magazine **CNF** = Conference **STD** = Standard

1 **An evaluation of intrinsic dimensionality estimators**
Verveer, P.J.; Duin, R.P.W.;
Pattern Analysis and Machine Intelligence, IEEE Transactions on , Volume: 17 , Issue: 1 , Jan. 1995
Pages:81 - 86

[Abstract] [PDF Full-Text (600 KB)] **IEEE JNL**

2 **Evolutionary Gabor filter optimization with application to vehicle detection**
Sun, Z.; Bebis, G.; Miller, R.;
Data Mining, 2003. ICDM 2003. Third IEEE International Conference on , 19-
Nov. 2003
Pages:307 - 314

[Abstract] [PDF Full-Text (488 KB)] **IEEE CNF**

3 **Encoding feedforward networks for topology optimization by simul evolution**
Schiffmann, W.;
Knowledge-Based Intelligent Engineering Systems and Allied Technologies, 2
Proceedings. Fourth International Conference on , Volume: 1 , 30 Aug.-1 Sep 2000
Pages:361 - 364 vol.1

[Abstract] [PDF Full-Text (340 KB)] **IEEE CNF**

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1 **A genetic algorithm with a machine order-based representation sch for a class of job shop scheduling problem**
Song, Y.; Hughes, J.G.;
American Control Conference, 1999. Proceedings of the 1999 , Volume: 2 , 2 June 1999
Pages:895 - 899 vol.2

[Abstract] [PDF Full-Text (464 KB)] IEEE CNF

2 **A classifier with the fuzzy Hopfield network for human chromosome**
Xiaogang Ruan;
Intelligent Control and Automation, 2000. Proceedings of the 3rd World Cong on , Volume: 2 , 28 June-2 July 2000
Pages:1159 - 1164 vol.2

[Abstract] [PDF Full-Text (416 KB)] IEEE CNF

3 **Petri-net and GA-based approach to modeling, scheduling, and performance evaluation for wafer fabrication**
Jyh-Horn Chen; Li-Chen Fu; Ming-Hung Lin; An-Chih Huang;
Robotics and Automation, IEEE Transactions on , Volume: 17 , Issue: 5 , Oct.

Pages:619 - 636

[Abstract] [PDF Full-Text (766 KB)] IEEE JNL

4 **Genetic reinforcement learning approach to the heterogeneous mac scheduling problem**
Gyoung Hwan Kim; Lee, C.S.G.;
Robotics and Automation, IEEE Transactions on , Volume: 14 , Issue: 6 , Dec

Pages:879 - 893

[Abstract] [PDF Full-Text (472 KB)] IEEE JNL

5 **A genetic algorithm for the single machine total weighted tardiness problem**
Liu, N.; Abdelrahman, M.A.; Ramaswamy, S.;
System Theory, 2003. Proceedings of the 35th Southeastern Symposium on , 18 March 2003
Pages:34 - 38

[Abstract] [PDF Full-Text (420 KB)] IEEE CNF

6 **Tuning of neuro-fuzzy controller by real-coded genetic algorithm wi application to an autonomous underwater vehicle control system**
Hua-Nan Yu; Jia-Min Zhao; Yu-Ru Xu;
Machine Learning and Cybernetics, 2002. Proceedings. 2002 International Conference on , Volume: 2 , 4-5 Nov. 2002
Pages:735 - 738 vol.2

[Abstract] [PDF Full-Text (378 KB)] IEEE CNF

7 **A fuzzy matter-element scheme multi-objective optimization metho based on genetic algorithm**
Zhao Yanwei; Zhang Guoxian;
Intelligent Control and Automation, 2002. Proceedings of the 4th World Congı on , Volume: 3 , 10-14 June 2002
Pages:1844 - 1848 vol.3

[Abstract] [PDF Full-Text (499 KB)] IEEE CNF

8 **Modeling, scheduling, and prediction in wafer fabrication systems u queueing Petri net and genetic algorithm**
Hung-We Wen; Li-Chen Fu; Shih-Shinh Huang;
Robotics and Automation, 2001. Proceedings 2001 ICRA. IEEE International Conference on , Volume: 4 , 2001
Pages:3559 - 3564 vol.4

[Abstract] [PDF Full-Text (520 KB)] IEEE CNF

9 **Encoding feedforward networks for topology optimization by simul evolution**
Schiffmann, W.;
Knowledge-Based Intelligent Engineering Systems and Allied Technologies, 2(Proceedings. Fourth International Conference on , Volume: 1 , 30 Aug.-1 Sep 2000
Pages:361 - 364 vol.1

[Abstract] [PDF Full-Text (340 KB)] IEEE CNF

10 **Petri-net and GA based approach to modeling, scheduling, and performance evaluation for wafer fabrication**

Jyh-Horng Chen; Li-Chen Fu; Ming-Hung Lin;
Robotics and Automation, 2000. Proceedings. ICRA '00. IEEE International Conference on , Volume: 4 , 24-28 April 2000
Pages:3403 - 3408 vol.4

[Abstract] [PDF Full-Text (516 KB)] **IEEE CNF**

11 **Scheduling in dual-resources constrained manufacturing systems u genetic algorithms**
Patel, V.; ElMaraghy, H.A.; Ben-Abdallah, I.;
Emerging Technologies and Factory Automation, 1999. Proceedings. ETFA '99 1999 7th IEEE International Conference on , Volume: 2 , 18-21 Oct. 1999
Pages:1131 - 1139 vol.2

[Abstract] [PDF Full-Text (676 KB)] **IEEE CNF**

12 **A genetic algorithm for flexible job-shop scheduling**
Chen, H.; Ihlow, J.; Lehmann, C.;
Robotics and Automation, 1999. Proceedings. 1999 IEEE International Confer on , Volume: 2 , 10-15 May 1999
Pages:1120 - 1125 vol.2

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2 **Classified information: the data clustering problem**
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